ABSTRACT OF THE DISCLOSURE

A method of characterizing conditions in a tissue, by (a) providing a catheter that has a light source that emits light in selected wavenumbers within the range of mid-IR spectrum; (b) directing the light from the catheter to an area of tissue at a location inside a blood vessel of a subject; (c) collecting light reflected from the location and generating a reflectance spectra; and (d) comparing the reflectance spectra to a reference spectra of normal tissue, whereby a location having an increased number of absorbance peaks at said selected wavenumbers indicates a tissue inside the blood vessel containing a physiological marker for atherosclerosis.